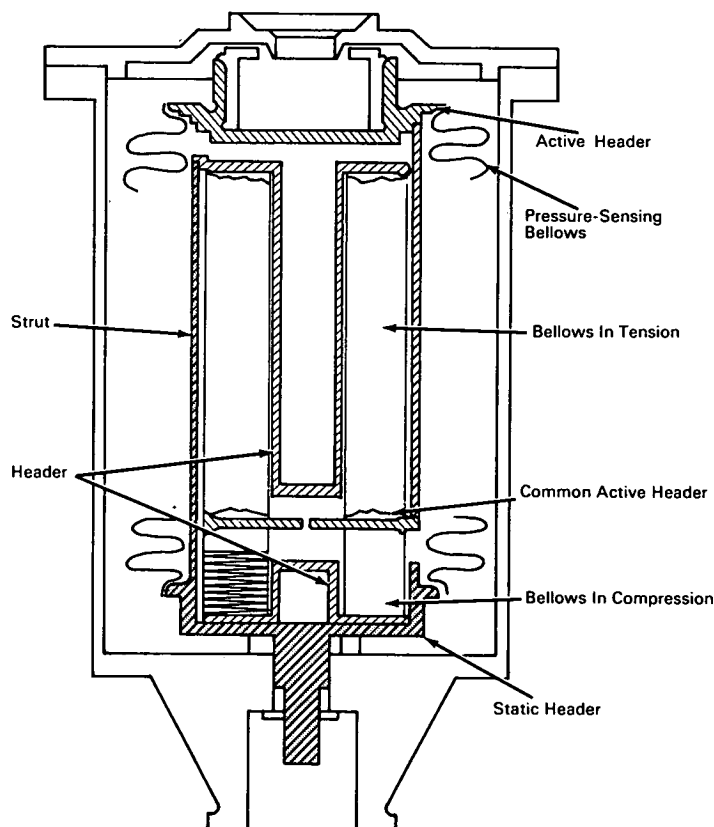


# NASA TECH BRIEF



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## Viscous Damper



A damping device has been developed that exhibits no hysteresis effect and is capable of preload. It is to be used in place of a preload spring in an aneroid bellows to provide viscous damping for the bellows system. Basically, the system operates about the action of a pressure sensing outer bellows attached to an active or dynamic header above and a static or fixed header below. Damping action is provided by two internal, equal area bellows, one in tension and one in

compression, which provide the desired preload to the system. These are connected to a common active header, which, in turn, is connected by a pair of semicircular struts to the active header of the sensing bellows. Opposite ends of these bellows are connected by separate headers to the sensing bellows static head. The bellows in tension is connected to the static header by thin semicircular struts located 90° out of phase in relation to those connecting the

(continued overleaf)

tension- and compression-bellows active header to the sensing-bellows active header so as not to interfere with the latter.

The two inner bellows (in tension and in compression) are completely filled with oil, and the common active header has an orifice in its center, sized so damping occurs only when the unit is vibrated. During vibration, damping is transmitted from the common active header through the struts to the pressure sensing bellows active header.

**Note:**

Inquiries concerning this innovation may be directed to:

Technology Utilization Officer  
Manned Spacecraft Center  
Houston, Texas 77058  
Reference: B68-10110

**Patent status:**

No patent action is contemplated by NASA.

Source: W. C. Dean  
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